UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,191	08/27/2003	Abraham B. de Waal	NVDA P000537	6452

26291 7590 01/12/2007

PATTERSON & SHERIDAN L.L.P.
595 SHREWSBURY AVE, STE 100
FIRST FLOOR
SHREWSBURY, NJ 07702

EXAMINER	
ROCHE, TRENTON J	
ART UNIT	**PAPER NUMBER**
2193	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/650,191	DE WAAL, ABRAHAM B.	
	Examiner	Art Unit	
	Trenton J. Roche	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20031223*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is responsive to communications filed 27 August 2003.

2. Claims 1-20 are currently pending and have been examined.

Information Disclosure Statement

3. The Information Disclosure Statement filed 23 December 2003 has been considered by the Examiner.

Specification

4. The disclosure is objected to because of the following informalities: In paragraph 0026, the first sentence is an incomplete sentence. Appropriate correction is required.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The invention as disclosed in claims 1-20 is directed to non-statutory subject matter. The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and **tangible** result." (State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F.3d at 1373, 47 USPQ2d at 1601-02.)

Specifically, claim 1 is directed to a method for obfuscating code, wherein inert instructions are inserted between two lines of code. However, the claim does not specify how these instructions are stored or otherwise executed such that the disclosed limitations would create a useful, concrete and tangible result. The claim as currently written does not preclude the possibility that a user has reduced the invention to merely inserting instructions by hand on a piece of paper which lists code. As such, the claim does not require that any actual steps of execution ever be performed, and simply amounts to an abstract idea which would not result in a practical application which produces a useful, concrete, and tangible result under the State Street Formulation.

On this basis, claims 1-16 are rejected under 35 U.S.C. § 101.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 5, 8 and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by "A Taxonomy of Obfuscating Transformations" by Collberg et al. ("Collberg").

Per claim 1:

Collberg discloses:

- obtaining an algorithm instantiated in code; obtaining at least two instructions of the code

  (Note section 6.2.1, page 11)

- inserting inert instructions between the at least two instructions obtained (Note section 6.2.1, page 11)

substantially as claimed.

Per claim 2, Collberg discloses unity instructions as claimed ("boolean operations..." in section 7.1.3, page 18)

Per claim 3, Collberg discloses logic instructions as claimed (Note Figure 18)

Per claim 4, Collberg discloses branch instructions as claimed (Note Figure 10)

Per claim 5, Collberg discloses reordering one or more of the inert instructions within the code as claimed. (Note section 6.2.1, page 11. The instructions are reordered.)

Per claims 6 and 7, Collberg discloses randomly obtaining instructions from a pool of instructions as claimed (Note footnotes 8 and 9, pages 31 and 32)

Per claim 8, Collberg discloses the inert instructions being instructions in the code as claimed. ("insert new (redundant or dead) code..." in section 6, page 10)

Per claim 9, Collberg discloses operands used by instructions in the code as claimed (Note section 6.2.6)

Per claims 10-14 and 16, Collberg discloses obtaining a seed from a pool of seeds, wherein the seed is randomly or pseudo-randomly selected from the pool, and is used to determine and select instructions for each build as claimed (Note footnotes 8 and 9, pages 31 and 32.)

Per claim 15, Collberg discloses utilizing seeds for the transformations, as noted above, and further discloses a threshold level as claimed ("transformation process is repeated until the required potency has been achieved..." in section 3, page 4. The potency level is the threshold level.)

Per claim 17:

Collberg discloses:

- a central processing unit configured to execute a code obfuscation program to insert inert instructions in portions of one or more programs (Note section 6.2.1, page 11. Further, note Figure 6. For the code obfuscator tool of Collberg to work, the system must inherently have a CPU directing execution.)
- an input/output interface configured to interface with the central processing unit; and a memory, the memory storing at least a portion of the code obfuscation program (Note Figure 6. For the code obfuscator tool of Collberg to work, the system must inherently have an I/O interface, such that the CPU can direct execution, and a memory to store items such as the source files, libraries, and symbol table.)

substantially as claimed.

Per claims 18 and 19, Collberg discloses the input/output interface coupled to the memory, and the memory coupled to the central processing unit as claimed. (Note Figure 6. The components would inherently be coupled together, otherwise the system would not operate.)

Per claim 20, Collberg discloses the memory containing at least one seed used during execution of the code obfuscation program (Note footnotes 8 and 9, pages 31 and 32.)

8. Claims 1, 5, 8 and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,694,435 to Kiddy.

Per claim 1:

Kiddy discloses:

- obtaining an algorithm instantiated in code; obtaining at least two instructions of the code (note col. 1 line 67 to col. 2 line 1, and further, note Figure 1.)
- inserting inert instructions between the at least two instructions obtained (note col. 2, lines 2-3, and further, note Figure 1.)

substantially as claimed.

Per claim 5, Kiddy discloses reordering one or more of the inert instructions within the code as claimed. (Note Figure 1, the stream is reordered with the dummy instructions.)

Per claim 8, Kiddy discloses the inert instructions being instructions in the code as claimed. ("null instructions may be used as the dummy instructions..." in col. 1 lines 59-60)

Per claim 17:

Kiddy discloses:

- a central processing unit configured to execute a code obfuscation program to insert inert instructions in portions of one or more programs (Note Figures 1 and 3, and further, note col. 2 lines 2-3)
- an input/output interface configured to interface with the central processing unit; and a memory, the memory storing at least a portion of the code obfuscation program (Note Figure 3)

substantially as claimed.

Per claims 18 and 19; Kiddy discloses the input/output interface coupled to the memory, and the memory coupled to the central processing unit as claimed. (Note Figure 3)

Per claim 20, Kiddy discloses the memory containing at least one seed used during execution of the code obfuscation program ("executing sequences of instructions contained in a memory…" in col. 4 lines 27-28. As the claim does not outline what the seed does, or how it in any way affects operation of the system, the Examiner is interpreting "seed" to be nothing more than an instruction.)

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. **U.S. Patent Application Publication 2005/0183072 A1 to Horning et al., which discloses an obfuscation system which is capable of inserting null-effect instructions (note paragraph 0150).**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trenton J. Roche whose telephone number is (571) 272-3733. The examiner can normally be reached on Monday - Friday, 9:00 am - 5:30 pm.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Trenton J Roche
Examiner
Art Unit 2193

TJR

MENG-AI AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100